SECTION 1 – CHEMICAL IDENTIFICATION

Trade Name: Hexadecenylsuccinic Anhydride
Synonym: HDSA
Formula: C_{20}H_{34}O_{3}, C_{22}H_{38}O_{3}
Chemical Family: Anhydrides
Chemical Use: Intermediate in alkaline paper sizing; copy paper; gypsum board sheets; lube oil applications; and water treatment.

Date of Issue: May 6, 1999
Revised Date: December 1, 2010

Telephone Number: Information (281) 474-3271
Emergency Number: Chemtrec (800) 424-9300 Domestic
(703) 527-3887 International

HMIS Hazard Rating
Health: 3 = High
Fire: 2 = Moderate
Reactivity: 1 = Slight
PPE rating to be supplied by user depending on use conditions.

SECTION 2 – HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a amber colored liquid with a mild odor. Health Hazard: This product may cause irritation to skin and respiratory system. Eye contact may cause severe irritation and possible corneal injury. Ingestion may cause irritation of the mouth, throat and gastrointestinal tract. Flammability Hazards: This product is Non-Flammable. Reactivity Hazards: No known hazards. Environmental Hazards: Environmental effects of this product are not known. Emergency Considerations: Emergency responders must wear the proper personal protective equipment (and have appropriate fire suppression equipment) suitable for the situation to which they are responding.

US DOT SYMBOLS CANADA (WHMIS) SYMBOLS EUROPEAN and (GHS) Hazard Symbols
Non-Regulated Not Controlled

EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No1272/2008 These substances are not classified in the Annex I of Directive 67/548/EEC

Hazard Statement(s):
H316: Causes mild skin irritation
H317: May use an allergic skin reaction
H318: Causes serious eye damage

Signal Word: Warning!
H319: Causes serious eye irritation  
H335: May use respiratory irritation

**Precautionary Statement(s):**
- P261: Avoid breathing dust/vapors  
- P271: Use only in well ventilated area.  
- P281: Use personal protective equipment as required.  
- P314: Get medical advice/attention if you feel unwell

**Hazard Classification:**

[Xi] Irritant

**Risk Phrases:**  
- R36/37/38: Irritating to eyes, respiratory system and skin  
- R43: May cause sensitization by skin contact.

**Safety Phrases:**  
- S24: Avoid contact with skin  
- S26: In case of contact with eyes  
- S36/37/39: Wear suitable protective clothing

**Inhalation:**  
May cause respiratory tract irritation, sneezing, and coughing.

**Skin Contact:**  
May cause irritation. Prolonged contact with skin may cause severe irritation and burns.

**Eye Contact:**  
May cause severe irritation, redness, pain, blurred vision, and tearing. Corneal injury and burns are also possible.

**Ingestion:**  
May cause irritation of the mouth, throat, and gastrointestinal tract.

### SECTION 3 – COMPOSITION

<table>
<thead>
<tr>
<th>Components</th>
<th>Percentage</th>
<th>TLV (ppm)</th>
<th>CAS #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexadecenylsuccinic anhydride</td>
<td>&gt;70</td>
<td>Not Established</td>
<td>32072-96-1</td>
</tr>
<tr>
<td>Octadecenylsuccinic anhydride</td>
<td>&lt;25</td>
<td>Not Established</td>
<td>28777-98-2</td>
</tr>
<tr>
<td>Mixed C15-20 olefins</td>
<td>&lt;2.5</td>
<td>Not Established</td>
<td>68603-32-7</td>
</tr>
</tbody>
</table>

### SECTION 4 – FIRST AID MEASURES

**Inhalation:**  
Remove victim to fresh air. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration. Get medical attention.

**Skin Contact:**  
Immediately remove contaminated clothing and shoes. Wipe excess material from skin and flush with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse contaminated clothing without laundering. Get medical attention.

**Eye Contact:**  
Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
Ingestion: Get medical attention immediately

SECTION 5 – FIREFIGHTING MEASURES

Extinguishing Media: Use water, foam, dry chemical, or carbon dioxide (CO₂).

Special Firefighting Procedures/Precautions: Firefighters should wear NIOSH approved self-contained breathing apparatus. Responders should wear protective clothing to prevent skin contact. Move containers from fire area. If unable to move, cool sealed containers with water.

Unusual Fire and Explosion Information: This material reacts with water or steam to form hexadecenylsuccinic acid and octadecenylsuccinic acid. This reaction is slightly exothermic. It should not present any problems if large quantities of water are used.

Environmental Note: Avoid runoff to waterways and sewers. May be toxic to aquatic organisms.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Protective Measures: Evacuate area of unprotected personnel. Eliminate sources of ignition. Stay upwind and out of low areas. Wear personal protective equipment (See section 8) when responding to spills.

Spill Management: Stop source of leak if safe to do so. Dike and contain spill. Use water spray (fog) to reduce vapors. If vapor cloud forms, blanket area with water fog and foam. Use vacuum truck or pump to storage/salvage vessels. Clean up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Spray area with water to remove trace residue. Contain run-off from residue flush and dispose of properly. Prevent entry into waterways, sewer, or confined areas. Remove contaminated trace residues from soil and dispose of in same manner as material. For small spills, clean up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and dispose of material properly.

Disposal: Proper disposal should be evaluated based on regulatory status of this material (refer to section 13).

SECTION 7 – HANDLING AND STORAGE

Containers do not have to be grounded and bonded when material is transferred, but it is recommended as a good practice. Store in a cool, dry place. Keep away from heat, sparks, and flames.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection: NIOSH approved respiratory protection for organic vapors.

Ventilation: Utilize local exhaust to control high vapor connections in confined areas.

Eye Protection: Chemical goggles and possibly a face shield. Have eyewash facilities readily available.

Other Protective Wear additional protective clothing to prevent skin contact. This may include
Equipment: chemical resistant boots and chemical resistant suits.

Work Practices: Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

Hand protection:

Data is based on Hexadecenylsuccinic Anhydride, CAS 32072-96-1, using test method ASTM F739-99a:

<table>
<thead>
<tr>
<th>Glove Material:</th>
<th>PVC</th>
<th>Nitrile Rubber</th>
<th>Neoprene Rubber</th>
<th>Butyl Rubber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layer Thickness:</td>
<td>1.1 mm</td>
<td>0.48 mm</td>
<td>0.96 mm</td>
<td>0.66 mm</td>
</tr>
<tr>
<td>Breakthrough time:</td>
<td>&gt;480 Min.</td>
<td>&gt;480 Min.</td>
<td>&gt;480 Min.</td>
<td>&gt;480 Min.</td>
</tr>
</tbody>
</table>

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Boiling Point:** 392°F (200°C) @ 1 mm Hg (initial boiling point)
- **Melting Point:** Not Established
- **Molecular Weight:** Mixture
- **Vapor Pressure (mm Hg):** Not Established
- **Vapor Density (Air = 1):** >1
- **Solubility in H₂O:** Reacts slowly with water.
- **Appearance/Odor:** Amber colored liquid / Mild odor.
- **Odor Threshold:** Not Established
- **pH:** Not Applicable
- **Viscosity (cps) @ 25 C:** 100 - 150
- **Specific Gravity (H₂O = 1):** 0.955 @ 77°F (25°C)
- **Evap. Rate (Butyl Acetate = 1):** <1
- **Flash Point:** 360°F (182°C) PMCC, ASTM D93
- **Lower Explosive Limit:** Not Established
- **Upper Explosive Limit:** Not Established

## SECTION 10 – STABILITY AND REACTIVITY

- **Chemical Stability:** Stable.
- **Conditions to Avoid:** Incompatible materials.
- **Incompatible Materials:** Water and alkaline substances. Water affects product quality. Reacts slowly with water to form hexadecenylsuccinic acid and octadecenylsuccinic acid.
- **Decomposition Products:** Oxides of carbon. Occurs at temperatures above 428°F (220°C).
- **Hazardous Polymerization:** Will not occur.
SECTION 11 – TOXICOLOGICAL INFORMATION

The toxicological effects of this material have not been fully investigated. Based on chemical structure similarities, this material may cause respiratory tract and skin sensitization. May aggravate pre-existing respiratory and skin disorders. Chronic exposure may cause bronchitis and asthma.

Carcinogenicity listed by:  NTP: No  IARC: No  OSHA: No

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>Hexadecenylsuccinic anhydride</th>
<th>TLV: Not Established</th>
<th>STEL: Not Established</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Octadecenylsuccinic anhydride</td>
<td>TLV: Not Established</td>
<td>STEL: Not Established</td>
</tr>
<tr>
<td></td>
<td>Mixed C15-20 olefins</td>
<td>TLV: Not Established</td>
<td>STEL: Not Established</td>
</tr>
<tr>
<td>OSHA</td>
<td>Hexadecenylsuccinic anhydride</td>
<td>PEL: Not Established</td>
<td>STEL: Not Established</td>
</tr>
<tr>
<td></td>
<td>Octadecenylsuccinic anhydride</td>
<td>PEL: Not Established</td>
<td>STEL: Not Established</td>
</tr>
<tr>
<td></td>
<td>Mixed C15-20 olefins</td>
<td>PEL: Not Established</td>
<td>STEL: Not Established</td>
</tr>
</tbody>
</table>

The following toxicological information is for Hexadecenylsuccinic Anhydride:

**Dermal:**
- **Hexadecenylsuccinic Anhydride:**
  - LD50: >5000 mg/kg (rabbit)

**Ingestion:**
- **Hexadecenylsuccinic Anhydride:**
  - LD50: >5000 mg/kg (rat)
- **Octadecenylsuccinic Anhydride:**
  - LD50: 5090 mg/kg (mouse)
  - TDLo: 60 g/kg (rat) 30D-I

**Intraperitoneal:**
- **Octadecenylsuccinic Anhydride:**
  - LD50: 2150 mg/kg (rat)

SECTION 12 – ECOLOGICAL INFORMATION

No data available.

SECTION 13 – DISPOSAL INFORMATION

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable regulations.

SECTION 14 – TRANSPORTATION INFORMATION

US DOT:

<table>
<thead>
<tr>
<th>Proper Shipping Name:</th>
<th>Not considered hazardous for shipping.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Hazard Class:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Secondary Hazard Class:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Identification Number:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Packing Group:</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
Reportable Quantity: Not Applicable
Marine Pollutant: Not Applicable
Label(s) Required: Not Applicable

SECTION 15 – REGULATORY INFORMATION

TSCA: All substances are listed on, or are exempt from reporting.

SARA Hazard Notification:

Hazard Categories Under Title III: Acute.
Section 302 Extremely Hazardous Substances: Not Listed.
Section 313 Toxic Chemicals: Not Listed.
CERCLA RQ: Not Listed.

TSCA 12(b) Export Notification: Not Listed
California Proposition 65: Not Listed

European Regulations:

EINECS Number: Hexadecenylsuccinic Anhydride: 250-911-4
Octadecenylsuccinic Anhydride: 249-210-6
Mixed C15-20 Olefins: 271-651-8

Labeling according to EC directives.
Symbol: Xi
Irritant

R-Phrases: R36/37/38 Irritating to eyes, respiratory system and skin.
S-Phrases: S36/37/38 Wear suitable protective clothing, gloves and eye/face protection. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Canadian Regulations:

All components are listed on the DSL or the NDSL.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and MSDS contains all the information required by the Controlled Products Regulations.

Japanese Regulations:
ENCS Number: Hexadecenylsuccinic Anhydride: 2-852X (unlisted chemical name)
    Octadecenylsuccinic Anhydride: 2-852X (unlisted chemical name)
    Mixed C15-20 Olefins: 2-27X (unlisted chemical name)

**Australian Regulations:**

All components are listed on the AICS.

**Korean Regulations:**

ECL Number: Hexadecenylsuccinic Anhydride: KE-18485
    Octadecenylsuccinic Anhydride: KE-10724
    Mixed C15-20 Olefins: KE-00651

**Philippines Regulations:**

Hexadecenylsuccinic Anhydride: Listed
    Octadecenylsuccinic Anhydride: Not Listed
    Mixed C15-20 Olefins: Not Listed

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**SECTION 16 – OTHER INFORMATION**

<table>
<thead>
<tr>
<th>PPE Codes (NPCA-HMIS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong> – Glasses</td>
</tr>
<tr>
<td><strong>B</strong> – Glasses, Gloves</td>
</tr>
<tr>
<td><strong>C</strong> – Glasses, Gloves, Apron</td>
</tr>
<tr>
<td><strong>D</strong> – Faceshield, Gloves, Apron</td>
</tr>
<tr>
<td><strong>E</strong> – Glasses, Gloves, Dustmask</td>
</tr>
<tr>
<td><strong>F</strong> – Glasses, Gloves, Apron, Dust Respirator</td>
</tr>
</tbody>
</table>

**Disclaimer**
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